

**REMARKS**

Reconsideration of the application is respectfully requested. Claims 5-16 are pending. Claims 5 and 7 have been amended. Claim 5 has been amended to specify a degree of vacuum of 20 Pa or lower and to incorporate the subject matter of claim 7 regarding levels of N<sub>2</sub>, O<sub>2</sub>, and H<sub>2</sub>O in the thermoplastic norbornene resin. Support for this amendment is found in the specification at page 5, line 24 to page 6, line 4 and in original claims 3 and 4. Claim 7 has been amended to remove the subject matter incorporated into amended claim 5. No new matter has been added.

**Rejections Under 35 U.S.C. §112, First Paragraph**

Claim 16 has been rejected under 35 U.S.C. §112, first paragraph, as not enabled. According to the Examiner, the interaction between the head surface structure and the media layer is critical to the invention, but is not expressly recited in the claim and is not enabled by the disclosure.

The rejection is respectfully traversed, and reconsideration is requested.

Claim 16 calls for a magnetic recording medium in which the substrate layer is a critical feature of the invention. The protection layer and head surface structure, on the other hand, are not critical to achieving the output of a strain gauge according to the present invention, since these features may be prepared according to conventional methods. *See, e.g.*, Specification at p. 17, lines 23-25 and p. 18, lines 3-4 (protection layer may be made from “conventional materials,” preferably carbon).

The critical importance of the substrate layer is illustrated in Embodiments 24-46 in the specification (p. 23, lines 1-11). In each of these embodiments, the substrate varies while the carbon protection layer remains the same. As shown in Table 7 (p. 29), the outputs of the strain gauge differ widely based on the substrate, which was dried according to corresponding methods 1-23. Thus, the

specification shows that the preparation of the substrate layer is critical in achieving a magnetic recording medium that is very precise and very reliable and that provides the desired output of a strain gauge at the end of continuous and high-speed head seek tests. *See* Specification at p. 30, lines 1-14; and p. 30, line 21 to p. 31, line 5.

Accordingly, because the specification enables one of ordinary skill in the art to make and use the substrate of the present invention, one of ordinary skill would therefore be able to make and use a magnetic recording medium comprising this substrate, which consequently achieves an output of a strain gauge of 0.5 g or less, as presently called for in claim 16. In view of the foregoing, claim 16 is enabled, and this rejection should be withdrawn.

#### **Rejections Under 35 U.S.C. §112, Second Paragraph**

Claims 9 and 13 have been rejected under 35 U.S.C. §112, second paragraph, as indefinite. According to the Examiner, the term “rugged portion” is unclear because it is defined in terms of its area alone.

The rejection is respectfully traversed, and reconsideration is requested.

The definiteness requirement under 35 U.S.C. § 112, second paragraph, is satisfied if a person of ordinary skill in the art would understand the scope of a claim when read in view of the specification. *Union Pac. Res. Co. v. Chesapeake Energy Corp.*, 236 F.3d 684, 692 (Fed. Cir. 2001). Here, the specification states that a “rugged portion” is a “surface defect” that is “1 $\mu$ m x 1 $\mu$ m or wider in area.” Specification at p. 6, lines 11-12; p. 17, lines 5-6; and original claims 9 and 13. The height or depth of the rugged portion is not critical. *See, e.g.*, Specification at p. 7, lines 13-18 (referring to “rugged surface portions of several  $\mu$ m in height difference”). Rather, a rugged portion is a measure of the area of the defect, which includes any peak or valley (of any height or depth)

that deviates from the substrate surface. Thus, if a peak or valley is broad enough (i.e., covers an area of  $1\mu\text{m} \times 1\mu\text{m}$  or wider), then it qualifies as a “rugged portion.” Moreover, each rugged portion contains a defect having any one particular height or depth, and does not include multiple defects of varying heights and/or depths. *See* Specification at p. 7, lines 13-18. Hence, to qualify as a “rugged portion,” an individual defect would contain only one peak or one valley that covers an area of  $1\mu\text{m} \times 1\mu\text{m}$  or wider. In view of the foregoing, a person of ordinary skill in the art would understand the scope of the term “rugged portion” when read in view of the specification, and would therefore comprehend the full scope of claims 9 and 13. Therefore, claims 9 and 13 are not indefinite, and this rejection should be withdrawn.

**Rejections Under 35 U.S.C. §102(b)**

Claims 5 and 6 have been rejected under 35 U.S.C. §102(b) as anticipated by Brekner et al. (U.S. Patent No. 5,439,722) (“Brekner”). According to the Examiner, Brekner discloses a norbornene resin dried at 0.2 bar, which qualifies as drying under vacuum since “vacuum” may be broadly interpreted as any pressure below one atmosphere. Additionally, the Examiner states that process limitations in article claims can be given no weight unless it can be shown that they result in a patentable article.

Claim 5 has been amended to replace each instance of the term “vacuum” with --a degree of vacuum of 20 Pa or lower--, and to incorporate the subject matter of claim 7 regarding levels of  $\text{N}_2$ ,  $\text{O}_2$ , and  $\text{H}_2\text{O}$  that are found in the presently claimed thermoplastic norbornene resin. The Examiner acknowledges that Brekner does not teach the content of the components recited in claim 7. *See* Office Action at p. 2. In fact, regarding gas levels, Brekner does not disclose any levels of  $\text{N}_2$ ,  $\text{O}_2$ , or  $\text{H}_2\text{O}$ , let alone those levels particularly recited in amended claim 5. Furthermore, the Brekner resin

would not inherently possess these claimed levels because the drying method recited in claim 5 (which is critical for achieving such low gas levels) significantly differs from the drying method taught by Brekner. Specifically, Brekner discloses a norbornene resin dried 0.2 bar (20,000 Pa), *see* Brekner at col. 8, lines 15-18, whereas the presently claimed thermoplastic norbornene resin may be dried under either a degree of vacuum of 20 Pa or lower, or a degree of vacuum of 20 Pa or lower and ordinary pressure. Thus, the presently claimed thermoplastic norbornene resin is dried in a particular way that controls the specific gas components contained therein and suppresses them below certain levels. Specification at p. 4, lines 18-22. Consequently, an alternative method of drying the resin (such as the Brekner method) would not result in a resin product having the presently claimed gas levels.

In view of the foregoing, Brekner does not anticipate claims 5 and 6 because this reference fails to disclose a thermoplastic norbornene resin having all the features recited in amended claim 5. Therefore, claims 5 and 6 are not anticipated by Brekner, and this rejection should be withdrawn.

**Rejections Under 35 U.S.C. §103(a)**

Claims 9, 12, and 13 have been rejected under 35 U.S.C. §103(a) as obvious over Brekner.

Claim 5 (from which claims 9, 12, and 13 depend either directly or through intervening claims) has been amended to specify the levels of N<sub>2</sub>, O<sub>2</sub>, and H<sub>2</sub>O in the dried thermoplastic norbornene resin product called for in this claim. In contrast, Brekner does not teach or suggest either the recited gas levels or the recited method of drying. Specifically, Brekner does not disclose or suggest any levels of N<sub>2</sub>, O<sub>2</sub>, or H<sub>2</sub>O in its norbornene resin, let alone those levels particularly recited in amended claim 5. Additionally, Brekner teaches a method of drying a resin that significantly differs from the drying steps recited in claim 5. Thus, there is no disclosure in Brekner

that would have taught or motivated a person of ordinary skill to modify the Brekner drying method in order to obtain the presently claimed resin having the particular gas levels called for in claim 5. Accordingly, claims 9, 12, and 13 are not obvious over Brekner, and this rejection should be withdrawn.

Claims 7, 8, 10, 11, 14, and 15 have been rejected either under 35 U.S.C. §102(b) as anticipated by, or under 35 U.S.C. §103(a) as obvious over, Brekner.

Claim 5 (from which claims 7, 8, 10, 11, 14, and 15 depend either directly or through intervening claims) has been amended to specify the levels of N<sub>2</sub>, O<sub>2</sub>, and H<sub>2</sub>O in the dried thermoplastic norbornene resin product called for in this claim. In contrast, Brekner does not teach or suggest either the recited gas levels or the recited method of drying. Specifically, Brekner does not disclose or suggest any levels of N<sub>2</sub>, O<sub>2</sub>, or H<sub>2</sub>O in its norbornene resin, let alone those levels particularly recited in amended claim 5. Additionally, Brekner teaches a method of drying a resin that significantly differs from the drying steps recited in claim 5. Thus, there is no disclosure in Brekner that would have taught or motivated a person of ordinary skill to modify the Brekner drying method in order to obtain the presently claimed resin having the particular gas levels called for in claim 5. Accordingly, claims 7, 8, 10, 11, 14, and 15 are not anticipated by or obvious over Brekner, and this rejection should be withdrawn.

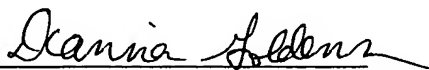
### **Conclusion**

In view of the above amendments and remarks, it is respectfully requested that the application be reconsidered and that all pending claims be allowed and the case passed to issue.

If there are any other issues remaining, which the Examiner believes could be resolved through either a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned at the telephone number indicated below.

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Respectfully submitted,

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